INDEX TO VOLUME 54

New names and the final members of new combinations are in **bold face type.**

Abies 7, 9; balsamea 10, concolor 10
Abietites Ernestinae 10; macrocarpus 10
Acanthostigma parasiticum 78, 129
Acer barbatum 242; pennsylvanicum 98; platanoides 98; rubrum Drummondii 164, 166; spicatum 98
Additions to the genus Munnozia R. & P., 311
Additions to the genus Phoradendron, 471
Adiantum 70, 71
Adoxa 97
Adventitious roots and shoots in an introduced weed, 35
Aecidium elatinum 64, 84, 86; houstoniatum 95; magellanicum 118; punctatum 124, 126, 141, 153; Sambuci 126, 153; Urticae 79, 91
Aegopodium Podagraria 86
Aesculus 510; Hippocastanum 503
Agaricus campestris 384, 385
Agrimonia Eupatoria 386
Ailanthus 500
Albugo 411; candida 77
Alchemilla arvensis 386; vulgaris 386
Aleuria cerea 387, 405
Alisma 627
Alliaria officinalis 37
Alnus incana 91; rugosa 162, 166
Analysis of the orthic tetrakaidecahedron, An, 341
Anemone nemorosa 82, 128
Anomodon attenuatus 161
Antagonism of calcium nitrate and magnesium chloride as indicated by growth of wheat roots, Stimulation, toxicity, and, 559
Antennaria 479
Antheridium of the Characeae: A descriptive study in morphogenesis, Variations in the mature, 187
Anthoceros punctatus 157, 165, 169
Anthozoma, 614
Antirrhinum 97
Aphelandra Porteana 502, 506
Apogamy, A study of seed development in three species of Erigeron with special reference to, 479
Aragallus 330, 331
Arisaema triphyllum 90, 125, 126, 141, 153
Ascocarp of Sphaerotheca Castagnei, Studies on morphogenesis and development of the, 383
Ascocarpus incisa 503
Ashe, W. W. Magnolia cordata and other woody plants, 579
Aspergillus 560; glaucus 388
Asplenium platyneuron 170
Aster novae-angliae 491, 492
Asterelibertia Conepiae 80
Asterina 78, 83
Astragalus acutirostris 331; albens 22; Andersonii 14, 15, 16; arietinus 21; arizonicus 22, 336; atratus 322; bernadinus 19; Bolanderi 18; Astragalus brevicaulis 17; Brucei 324; candicans 17; cedrocensis 330; Chapalensis 335; clarianus 324; Clevelandi 334; Coahuilae 23; Cobrensis 336; Congdoni 14, 16, 20; Davisianus 328; diaphanus 21; distortus 18, 21; dorycnioides 14; drepanolobus 21; Engelmanni 18; ensiformis 21; ervoides 336; Astragalus Esperanzae 335; feensis 14; Fremontii 15; glyciphyllus 13; Goldmani 332; glaber 18, 23; Greggii 20, 336; hamosus 13, 18; Hartwegii 332, 333; Howellii 18; hypoleucus 334; Hypoglottis strigosa 322, 323; hypoxylus 334, 336; Kelloggiana 324; Layneae 14, 15; Leibergii 18; lentiformis 336; Lemmoni 336; lentiginosus 21; leptocarpus 322, 326; Lindheimeri 13, 20, 321; Luisanus 334; Madrensis 336; malacus 14, 15, 16; micranthus 321, 325; militaris 332; misellus 18; Mulfordi 18; Nevisii 18; nothoxys 23; Nuttallianus 20, 321, 325, 327, 330, 336; Nuttallianus canescens 327; Nuttallianus enneajugus 325; Nuttallianus leptocarpoides 326; Nuttallianus quadrilateralis 325; Nuttallianus trichocarpus 327, 328, 329; obfalcatus 15; obscurus 322; Orcuttianus 18; oxyrhynchus 336; Parryi 14; parvus 334, 335, 336; pauperculus 323; pertenuis 329; Pringlei 336; Pueblae 336; Purpusi 336; Rattani 324; recticarpus 324, 325; Saltonis

332; Seatoni 336; Schaffneri 335; streptopus 331; strigosus 324; subuniflorus 328; succumbens 13, 14; sylvaticus 19; tener 13, 321, 322; tener Bruceae 323; tener rattanoides 324; Titi 323; Traskiae 18; tricarinata 20; trichocarpus 329; trimestris 13; umbraticus 19; ursinus 21; vaccarum 334
Atelephragma 336
Athyrium asplenioides 161
Avena 82, 97, 139
Axinaea Pennellii 28; Weberbaueri 29

Bacillus amylovorus 74; radicicola 74
Bacterium tumefaciens 507
BARTON, LELA V., and SAM F. TRELEASE. Stimulation, toxicity, and antagonism of calcium nitrate and manganese chloride as indicated by growth of wheat roots, 559
BARTRAM, EDWIN B. Notes on Mielichhoferia, 31
Beta 82
Betula 82; nigra 166
Biophysics of Podophyllum petioles, A contribution to the, 419
Blepharodon ornatum 618; Steudelianum 618
Botryorrhiza Hippocrateae 80, 83, 85
Botrytis 65, 68, 69, 70, 72, 79, 87; cinerea 70, 71, 128; Tulipae 71
Brachyotum alpinum 26; **nutans** 25, 26
Bulbochaete 620, 621, 623, 624
BUSH, BENJAMIN FRANKLIN. The glabrate species of Tilia, 231

Calypogeia 85; Trichomanis 87, 166
Capparis 475
Capsella Bursa-pastoris 91
Carex setigera 91
Carpinus caroliniana 162, 165
Carya alba 163
Castanea 507; alnifolia floridana 164; margaretta arcuata 582; margaretta f. Dormonae 582
Catalpa bignonioides 166; speciosa 500
Catharinea angustata 158, 161, 165
Ceanothus americanus 85, 134
Cephalozia 166; catenulata 165
Ceratophyllum demersum 257
Certain fossil cones from the Pacific Coast, On, 7
Chaetocladium 66, 77, 78
Cheilanthes siliquosa 253
Chara 187; baltica 188; contraria 188, 226; coronata 230; coronata f. maxima 188; coronata f. Schweinitzii 188; delicatula 188, 192, 195, 196, 197, 198, 210, 211, 212, 213, 214, 217, 218, 222, 226–230; foetida 188, 211; fragilis 188, 192, 193, 197, 207, 211, 226; hispida 209; pusilla 200; vulgaris 188; zeylanica 188, 227
Characeae: A descriptive study in morphogenesis, Variations in the mature antheridium of the, 187
Cheiloclinium 614
Chondrilla 479
Chrysomyxa Pyrolae 126, 128, 141
Ciboria uliginosa 387
Cintractia Seymouriana 79
Cirrphyllum Boscii 168
Claytonia virginiana 122, 123, 141
Clerodendron 510
Coccomyces 78
Coleosporium Pini 79, 95, 97, 139; Senecionis 82, 83; Sonchi-arvensis 81, 82, 85
Colletotrichum Lindemuthianum 129, 130
Commelina benghalensis 338
Commelinantia anomala 338, 340; Pringlei 337–340
Completoria complens 77, 84, 86, 131
Conocephalus ovatus 505; suaveolens 505
Contribution to the biophysics of Podophyllum petioles, A, 419
Convallaria 99
Coprinus radians 623; Rostrupianus 623
Corn and sorghum, Experimental studies on head smut of, 295
Cornus florida 164, 162
Corticium vagum Solani 72
Crataegus 81
Cronartium asclepiadeum 97; ribicola 79, 82, 84, 85, 88, 92, 123, 133, 135
Cryptocarya pachycarpa 607
Cryptogramma 253
Cupania obovata 616
Cuscuta 35
Cuticularia Ilicis 78, 87
Cylindrosporium Padi 78, 88
Cymbidium 603
Cymbopetalum brasiliense 607; **venosum** 607
Cytological and a genetical study of Petunia, A, 657
Cystopus 64; candidus 86

Dactylis glomerata 97
Dahlia plants affected with mosaic disease and dwarf, The X-bodies in the cells of, 285
Darluca filum 78, 123
Datura 626; laevis 659

Dichaea brachyphylla 604, 605; Cogniauxiana 604; Dammeriana 606; graminoides 603, 605; picta 606; **Rendlei** 604; **trinitensis** 605
Dicranella rufescens 161
Diervilla 500
Dimerosporium 78
Diospyros virginiana 164
Drosera brevifolia 163
Dryopteris normalis 161, 170

Ecad or ecotype ?, Zostera marina latifolia, 1
Ecological habitats in the Longleaf Pine Flats of Louisiana, Some, 155
Eleagnus argentea 85, 132, 134
Entyloma Nymphaeae 83, 130
Entodon seductrix 161
Ephedra campylopoda 625
Epidendrum graminoides 603
Eremiticus 18
Erigeron annuus 479, 480, 483, 485–487, 493, 494, 496, philadelphicus 479, 480, 486, 489, 491, 493, 494, 496, 497; strigosus 479, 480, 485, 486, 487, 493, 494, 496
Ervum lens 499
Erwinia amylovora 583
Erysiphe 383, 388, 394, 412; Cichoracearum 80; communis 135; graminis 79, 100, 131, 386, 387; Tuckeri 64
Ethylene gas as affected by external and internal conditions, The production of intumescences in Transparent apple by, 499
Eupatorium 479
Euphorbia Cyparissias 81, 82, 88, 90, 91, 95
Eurhynchium strigosum 168
Eurotium glaucum 383
Evonymus americanus 168
Exoascus amentorum 91; Rhododendri 88
Exobasidium Rhododendri 91
Experimental studies on head smut of corn and sorghum 295
Extraordinary sexual phenomena in plants 619

Fabaceae, Notes on—VIII, 13;—IX, 321
Ferguson, Margaret C. A Cytological and a genetical study of Petunia 657
Ferns: Polypodium vulgare var. occidentale and Pellaea densa, The gametophytic development of certain, 249
Ficaria ranunculoides 79
Ficus australis 503, 509; elastica 502, 503, 509
Fissidens obtusifolius 161, 165
Flora of northern South America—X, Studies on the, 603
Florida, A new Sagittaria from: Sagittaria Kurziana, 257
Forests, Soil temperatures in redwood and hemlock, 649
Fossil cones from the Pacific Coast, On certain, 7
Fossombronia foveolata 166
Fragaria 386; biltmoreana 580
Fraxinus catawbiensis 580; profunda 580
Fritillaria meleagris 82
Fucus 628

Galussacia dumosa 164
Gametophytic development of certain ferns: Polypodium vulgare var. occidentale and Pellaea densa, The, 249
Gelsemium sempervirens 166, 168
Genetical study of Petunia, A cytological and a, 657
Geranium maculatum 71
Gibberella Saubinetii 99, 119
Ginkgo 509
Glabrate species of Tilia, The, 231
GLEASON, H. A. Four new Melastomataceae from Peru, 25; Studies on the flora of northern South America—X, 603
Gleditschia 500
Gleosporium 68
GLÜCK, HUGO. A new Sagittaria from Florida: Sagittaria Kurziana, 257
GOLDSTEIN, BESSIE. The x-bodies in the cells of dahlia plants affected with mosaic disease and dwarf, 285
Gordonia altamaha 579
Gunnera 627
Gymnoconia interstitialis 79
Gymnosporangium bermudianum 82, 85, 88; clavipes 81, 82; clavariaeforme 97; fraternum 85; Juniperi-virginianae 84, 92, 95; Sabinae 82

Habitats in the Longleaf Pine Flats of Louisiana, Some ecological, 155
Hamamelis macrophylla 164
Hamosa 13–23, 321–326; **acutirostris** 330, 331; **albens** 19, 22; **Andersonii** 15, 16; **asperula** 332, 335; **arizonica** 19, 22, 330; austrina 332, 325, 327–329; **bernadina** 18, 19, 330; **Bruceae** 321, 323, 324; calycosa 16, 17; **Clevelandi** 331,

334; **Coahuilae** 19, 23, 330; **Congdoni** 19, 20; **Davisiana** 322, 328; **drepanoloba** 19, 21; **Emoryana** 322, 327–329; **Ensiformis** 19, 21; **Esperanzae** 332, 331, 335; **Goldmani** 331, 332; **Gooddingii** 19, 20; **Greggii** 19, 20; **Hartwegii** 331, 333, 334; **hidalgensis** 331, 333; **hypoleuca** 331, 334; **hypoxyla** 332, 336; **imperfecta** 322, 329; **Kelloggiana** 321–323; **Layneae** 15; leptocarpa 321, 325, 326; **leptocarpoides** 322, 326; Lindheimeri 321, 324; macilenta 322, 326–328; malaca 14, 15; **manca** 17; **militaris** 331, 332; **Minthorniae** 15; **monetreyensis** 322, 326; **nothoxys** 19, 23, 330; Nuttalliana 322, 325–328; **parva** 331, 335; **Paysonii** 19, 21, 22; **pertenuis** 322, 329; **Pringlei** 332, 336; **Rattani** 321, 324; **rattanoides** 321, 323, 324; **Saltonis** 331, 332; scaposa 16, 17; **subuniflora** 322, 328; **succumbens** 14; **tenera** 322–324; **tricarinata** 19, 20; **umbratica** 18, 19, 21; **vaccarum** 331, 334

Haustoria of certain rusts and the relation between host and pathogene, The, 63

HEIN, ILLO. Studies on morphogenesis and development of the ascocarp of Sphaerotheca Castagnei, 383

Helianthus 507; annuus 420;

Helvella sulcata 387, 405

Hemileia vastatrix 64, 80, 84, 95

Hepatica acutiloba 124

Hesperastragalis 336

Hibiscus 500; vitifolius 504

Hicoria aquatica × Buckleyi arkansana 582; Buckleyi 582; × ludoviciana 582

Hieracium 479

Himmel, Walter J. A contribution to the biophysics of Podophyllum petioles, 419

Hippeastrum 286

Hippocratea 610, 611, 614; **flavea** 612, 613; **lutea** 611, 613; ovata 611; volubilis 611

Hirtella 609

Homalobus 330

Houstonia caerulea 125

Hura crepitans 472

Hydrocotyle umbellata 158

Hydrodictyon 628

Hylenaea 611

Hysterostomella 78

Ilex 510; glabra 164; opaca 166; vomitoria 164

Illicium floridanum 166

Impatiens Sultani 502

Index to American botanical literature, 39, 173, 263, 453, 587, 631, 665

Indigofera leptosepala 325

Intumescences in Transparent apple by ethylene gas as affected by external and internal conditions, The production of 499

Irene 78; matulensis 84;

Iris versicolor 161

Isochilon 603

Isochilus graminifolius 603; graminoides 604, 605

Isoetes 501

Juniperus 81; barbadensis 82; bermudiana 82; Sabina 82; virginiana 82

KARLING, J. S. Variations in the mature antheridium of the Characeae: a descriptive study in morphogenesis, 187

Kieffer pear seedlings and fire blight resistance, 583

Kippistia 611, 614

Lamprothamnus alopecuroides 188, 192, 195, 211–213, 216–218, 227, 229

Lasiobolus pulcherrimus 385, 390

Lathyrus odoratus 499

Lecostemon amazonicum 609; **sylvestre** 608

Lembosia 78; Melastonatum 80, 81

Leucobryum sediforme 166, 167

Leucolejeunea 166; unciloba 165

Liabum 311; giganteum 312; glandulosum 312; hastatum, 315; hirtum 312; Rusbyi 312, 313; sagittatum 319

Licania 609

Linaria 37

Liquidambar styraciflua 164, 166

Lonicera japonica 168

Lophotocarpus 257

Lolium temulentum 68, 92

Lycopodium alopecuroides 161, 163; clavatum 86

Lysiostyles pubescens 616, 617; scandens 617

Mabea ciliata 610

MCDONALD, CLINTON C. A study of seed development in three species of Erigeron with special reference to apogamy, 479

Magnolia cordata and other woody plants, 579
Magnolia acuminata 579
Matayba 616
MATZKE, EDWIN B. An analysis of the orthic tetrakaidecahedron, 341
Melampsora 93; betulina 82; Goeppertiana 140; Lini 101; Pyrolae 82, 140
Melampyrum 386
Melastomataceae from Peru, Four new, 25
Meliola 78, 83, 84; amphitricha 80; Andirae Puttemansii 88; nidulans 88; polytricha f. Anacardiaceae 88
Miconia ciliata 618; pulvinata 618; racemosa 618; **Toroi** 617, 618
Microsphaera 411
Mielichhoferia, Notes on, 31
Mielichhoferia compacta 31; cuspidifera 31, 33, 34; macrocarpa 31, 33, 34; macrocarpa **pungens** 32, 33; nitida 31; nitida elongata 33
Milesina marginalis 89; polypodophila 89
Morphogenesis and development of the ascocarp of Sphaerotheca Castagnei, Studies on, 383
Morus rubra 184
Mosaic disease and dwarf, The x-bodies in the cells of dahlia plants affected with, 285
Munnozia R. & P., Additions to the genus, 311
Munnozia Ariste-Josephi 314, 317; **attenuata** 317; **chrysanthemoides** 313; corymbosa 311, 317; **deltoides** 315; **filipes** 318; **foliosa** 312; **gigantea** 312; **glandulosa** 312; **hirta** 312; lanceolata 311; **laxiflora** 319; **longifolia** 313; **muricata** 315, 317; **Rusbyi** 312; sagittata 311, 315, 316; senecionidis 311; **strigulosa** 317; trinervis 311; venossissima 311, 316
Myriophyllum scabratum 158
Myrica cerifera 85, 134, 168

Neottia Nidus-avis 85, 134
New Melastomataceae from Peru, Four, 25
Nicotiana 659
Nitella 187; batrachosperma 188; flexilis 188, 190, 192, 195, 198, 200, 209–213, 215, 218, 219, 226–230; gracilis 188; syncarpa 187, 197, 211
Notes on Fabaceae—VII. Hamosa, 13; —IX. Hamosa (concluded), 321
Notes on Mielichhoferia, 31

Odontoschisma prostratum 161, 165
Oedogonium 411, 620, 621, 623, 624; Borisianum 620; nebraskense 620; Wolleanum 620
Onoclea sensibilis 161
Osmunda cinnamomea 161; regalis 161, 170
Otidea onotica 387
Oxytropis 330, 331

Padus Cuthbertii 581
Pallavicinia Lyellii 161, 165
Parinarium 609
Parmularia 78
Parodiella 78
Parodiopsis Ingarum 80
Passiflora caerulea 420
Patouillardia clavispora 80
Paullinia arenicola 615; **Hitchcockii** 614, 615; rufescens 614, 615
Pediastrum 628
Pelargonium 70, 71
Pellaea adiantoides 252; atropurpurea 252; atropurpurea cristata 252; densa 251, 253, 255; flavens 252; glabella 252; hastata 252; nivea 252; tenera 252; viridis 252
Penicillium glaucum 388
Peperomia 627; hispidula 628; pellucida 628
Peridermium balsameum 95; cerebrum 85; Pini 82; pycnogrande 95
Perisporiopsis splendens 80
Peritassa 611
Peronospora Radii 85; Schleideniana 85; Umbelliferarum 86
Petioles, A contribution to the biophysics of Podophyllum, 419
Petunia, A cytological and a genetical study of, 657
Petunia nyctaginiflora 657, 662, 663; violacea 657
Peru, Four new Melastomataceae from, 25
Peziza Sclerotiorum 69, 70; venosa 387
Phaca 336; astragalina 322
Phaseolus vulgaris 420
Philodendron pinnatifidum 503
Philonotis 33; fontana 157, 161;
Phoradendron, Additions to the genus, 471
Phoradendron angustifolium 472; Baileyae 476; Barahonae 477; **brachypodum** 474; caerulescens 475; **Canzacotoi** 477; ceibanum 475; cerinocarpum 477; chaguaramasanum 475; Gaumeri 475; **guascanum** 474; **Goldmani** 471;
Phoradendron hexastichum 476;

huricolum 471; **lapatanum** 476; **Millspaughii** 475; obliquum 474; **Pachanum** 473; **pifoense** 473; **pomasquianum** 472; **pseudo-angustifolium** 472; **Roseanum** 472; Rusbyanum 475; tamaulipense 475; Townsendi 475
Phragmidium 93; subcorticium 82; violaceum 80, 82, 85
Phycomyces 435
Phyllactinia 392, 404, 412, 413
Physoderma 77; Zeae 76; Zeae-Maydis 98
Phytolacca 507
PICKETT, F. L., and LEWIS A. THAYER. The gametophytic development of certain ferns: Polypodium vulgare var. occidentale and Pellaea densa, 249
Picea 625
Pine Flats of Louisiana, Some ecological habitats in the Longleaf, 155
Pinguicula lutea 163
Pinus 9, 625; attenuata 9; muricata 7, 8; Nordenskioldi 8; palustris 156; Strobus 82, 88, 92; sylvestris 82; Taeda 156, 161, 169; virginiana 79
Plantago lanceolata 386; major 386; media, 386
Piptocephalis 66, 77
Pirus communis 82
Plasmodiophora Brassicae 74, 75, 76
Plasmopara viticola 83, 84
Podocapsa 78
Podophyllum 91, 125; peltatum 420–451
Podosphaera 387; Castagnei 64; tridactyla 383
Pogonatum brachyphyllum 158; brevicaula 158
Polyactis vulgaris 70
Polycodium caesium 579; oliganthum 579; **quercinum** 580; revolutum 579
Polygonatum multiflorum 99, 100
Polygonum 507
Polypodium polypodioides 170; vulgare occidentale 249, 251, 252, 254
Polystichum acrostichoides 162
Populus deltoides 510, 518, 542; tremula 504, 508; tremuloides 420
Porella pinnata 161
Potamogeton 257
Potentilla reptans 386
Poterium officinale 386
Prionostemma 611
Pristimera 611; apiculata 614
Production of intumescences in Transparent apple by ethylene gas as affected by external and internal conditions, The, 429
Prunus Pennsylvanica 73
Psedera quinquefolia hirsuta 166, 168
Pseudotsuga 9; mucronata 10
Pseudomonas 76; radicicola 85
Pteris aquilina 161
Puccinia 93; Adoxae 85; Asparagi 79, 95; Asterum 124, 153; claytoniata 122, 128, 141, 153; Convallariae-Digraphidis 99; coronata 89, 90, 97, 139; Diagraphidis 99; dispersa 97; fusca 82; glumarum 81, 84, 85, 96, 100; graminis 79, 80–82, 84, 85, 90–98, 129, 133, 139, 141, 622; graminis Secalis 97, 140; graminis Tritici 82–85, 89, 97–102, 104, 106, 119, 123, 133, 136, 140; leucospermum 82, 85, 128; Malvacearum 64; Podophylli 91; Potentillae 95; rubigo-vera Secalis 97; Smilacearum-Diagraphidis 99; Sorghi 85, 89, 98, 102, 128, 130, 136, 139, 141, 151–153; Thesii 85; Violae 97, 123, 141, 153; Xanthii 85, 133
Pustularia vesiculosa 387
Pyrola 142; americana 126–128, 140, 141, 153; rotundifolia 82
Pyronema 410, 411, 412
Pyrus communis 509, 585; communis sativa 583; Malus 509, 510; serotina culta 583
Pythium 65, 68, 73, 75; palmivorum 77

Quercus alba latiloba 163; arkansana caput-rivuli 579, 581; Catesbaei 163; falcata 163; laurifolia 242; marilandica 163; nigra tridentifera 166; phellos 166; Prinus 163; virginiana 170; stellata 163

Raddia 611
Reboulia 169; hemispherica 167, 168, 170
REED, GEORGE M., MARJORIE SWABEY, and LAURA ALMA KOLK. Experimental studies on head smut of corn and sorghum, 295
Rhizoctonia 72, 128
Rhizopus 73, 79; nigricans 130; Tritici 94
Rhododendron 91; canescens 164
Rhus caroliniana 581; glabra 420; Toxicodendron 168
Rhytisma punctatum 98
Ribes 88, 510; aureum 509
Riccardia latifrons 166

Riccia fluitans 158
RICE, MABEL AGNES. The haustoria of certain rusts and the relationship between host and pathogene, 63
Ricinus communis 420, 500, 507
Robinia 510; pseudoacacia 420
Roestelia cancellata 85, 95
Roots and shoots in an introduced weed, Adventitious 35
Roripa austriaca 35, 38
Rosa 82
Rubus 88, 93; fruticosus 80, 82
Ruellia formosa 502
Rusby, H. H. Additions to the genus Munnozia R. & P., 311
Rusts and the relation between host and pathogene, The haustoria of certain, 63
Rydberg, Per Axel. Notes on Fabaceae—VIII. Hamosa, 13;—IX. Hamosa (concl.), 321

Sabal Palmetto 257
Sagittaria from Florida: Sagittaria Kurziana, A new, 257
Sagittaria Kurziana 257–261; latifolia 627; lorata 257, 258, 260, 261; natans 257, 260; natans lorata 261; sagittifolia 260; subulata 257; subulata gracillima 260
Salacia 610, 611, 614
Sambucus 510; canadensis 126, 153; nigra 503
Sarracenia psittacina 163; Sledgei 163
Sassafras variifolium 164
Saururus cernuus 161
Scapania nemorosa 161, 165
SCHAFFNER, JOHN H. Extraordinary sexual phenomena in plants, 619
× Schmaltzia Ashei 581; glabra 581; Michauxii 581
Sclerospora graminicola 84, 87, 89; philippinensis 84, 88; spontanea 88
Sclerotinia Geranii 71; Libertiana 129, 130
SCOTT, FLORA MURRAY. On certain fossil cones from the Pacific Coast, 7
Secale 97
Seed development in three species of Erigeron, with special reference to apogamy, A study of, 479
Seedlings and fire blight resistance, Kieffer pear, 583
Selaginella selaginelloides 167, 168
Senecio vulgaris 82
Septogloeum Hartigianum 78
Septoria 68, 73; Apii 98
Sequoia sempervirens 651
SETCHELL, WILLIAM ALBERT. Zostera marina latifolia: ecad or ecotype? 1
Sexual phenomena in plants, Extraordinary, 619
SHREVE, FORREST. Soil temperatures in redwood and hemlock forests, 649
Silphium, 626; laciniatum 479
Smilax rotundifolia 168
Smut of corn and Sorghum, Experimental studies on head, 295
Soil temperatures in redwood and hemlock forests, 649
Solanum 510; aculeatissimum 286
Solidago 82, 124; serotina 491, 492
Sophora 509
Sordaria 383
Sorosporium Reilianum 295; Saponariae 79, 86
South America—X, Studies on the flora of northern, 619
Sphacelotheca cruenta 295; Sorghi 295
Sphaerotheca 387, 388, 392, 397, 412, 413; Castagnei 81, 85, 383–417; Humuli 386; Humuli fuliginea 386; mors uvae 389, 411; pannosa 386, 407
Sphagnum imbricatum 156
Spiraea concinna 503; ulmaria 386
Spirogyra 569, 620, 627
Spongospora 76; subterranea 75, 76
Stewartia Malachodendron 162
Stimulation, toxicity, and antagonism of calcium nitrate and manganese chloride as indicated by growth of wheat roots, 559
Study of seed development in three species of Erigeron, with special reference to apogamy, A, 479
Studies on morphogenesis and development of the ascocarp of Sphaerotheca Castagnei, 383
Studies on the flora of northern South America—X, 603
Syncephalis 66, 77
Syringa 70, 71, 500

Taphrina 78, 93
Taraxacum 479; officinale 386
Taxodium distichum 257
TAYLOR, ARAVILLA MEEK. Some ecological habitats in the Longleaf Pine Flats of Louisiana, 155
Tecoma radicans 166
Temperatures in redwood and hemlock forests Soil, 649

Tetrakaidecahedron, An analysis of the orthic, 341
THARP, B. C. Commelinantia Pringlei, 337
THAYER, LEWIS A. (see PICKETT, F. L.), 249
Thermophylla 611
Tibouchina adenophora 28; cymosa 28; **dimorphylla** 27; mollis 28; octopetala 26, 27; **pulcherrima** 26, 27; rhynantherifolia 28; Rusbyi 28; Solmsii 28
Thecopsora Vacciniorum 85
Thesium 80
Thismia Aseröe 84, 85, 134
Thomas, H. E. Kieffer pear seedlings and fire blight resistance, 583
Tilia, The glabrate species of, 231
Tilia alabamensis 232, 235, 244, 246–248; alabamensis **oblongifolia** 235, 244; americana 231, 235; americana pubescens 247; **Ashei** 233, 241, 242; australis 234, 244; caroliniana floridana 246; Cocksii 235, 243, 245; creno-serrata 233, 241, 246; floridana 232, 235, 241–248; floridana alabamensis 247; floridana australis 244; floridana hypoleuca 244, 245; floridana oblongifolia 248; glabra 231–235, 238, 246, 247; glabra **neglecta** 234, 238; heterophylla 581; heterophylla tenera 245; hypoleuca 234, 244, 245; leiophylla 245, 247; leucocarpa 234, 238, 239, 243, 244; leucocarpa f. **attenuata** 239; leucocarpa **brevipedunculata** 234, 240, 246; leucocarpa **glaucescens** 234, 239; littoralis 235, 241; littoralis discolor 235, 241; Michauxii 245; neglecta 238; nuda 238, 239, 244; nuda brevipedunculata 240; nuda glaucescens 239; porracea 242; pubescens Aitonii f. glabrata 244, 246; venulosa 234, 240; venulosa multinervis 234, 240
Tillandsia usneoides 170
Thuidium delicatulum 161, 165, 168
Tontelea 611
Toxicity, and antagonism of calcium nitrate and manganese chloride as indicated by growth of wheat roots, Stimulation, 559
Tradescantia anomala 337; Pringlei 337
Trabutia quercina 78, 80
Tragopogon 86
TRELEASE, SAM F., and LELA V. BARTON. Stimulation, toxicity, and antagonism of calcium nitrate and manganese chloride as indicated by growth of wheat roots, 559
TRELEASE, WILLIAM. Additions to the genus Phoradendron, 471
Trichanthera gigantea 617; gigantea **guianensis** 617
Trichosphaeria parasitica 78
Tricyrtis 626
Triticum 82
Tropaeolum 499
Tsuga canadensis 651
Tuberculina persicina 78

Ulmus 500
Uncinula Aceris 98, 138
Uredo Aceris 98, 138; Chrysanthemi 81; dispersa 64, 82, 85, 96, 97, 100, 136; graminis 64
Urocystis 93; Anemones 83; Cepulae 84; occulta 86
Uromyces Adoxae 133; Alchemillae 85, 133; appendiculatus 98, 110, 124, 141, 153; Betae 82, 83, 88, 133; Caladii 90, 125, 141, 153; Erythronii 80, 82, 83; Ficariae 79, 81; houstoniatus 125, 141, 153; Pisi 82, 84, 85, 88, 91, 95; rubigo-vera Secalis 139; Veratri 97
Urophlyctis Alfalfae 76
Urtica dioca 79; parviflora 91
Ustilago Avenae 79; Carbo 78, 86; Heufleri 78; Hordei 78, 79; hypodytes 78; laevis 78, 85; longissima 78; Maydis 78, 85, 86, 133; pulveracea 295; Reiliana 295; Sorghi 79; striaeformis 79, 84; Tritici 78; Zeae 295; Zeae-Mays 78, 79

Vaccinium canadense 85; Pennsylvanicum 85
Vallisneria americana 257
Variations in the mature antheridium of the Characeae: A descriptive study in morphogenesis, 187
Vaucheria 411
Venturia inequalis 98
Veratrum album 97
Viburnum scabrellum 166
Vicia Faba 420, 443; sativa 499
Vincetoxicum 97
Viola cucullata 97, 123, 127, 153
Vitis 509; rotundifolia 166
Vouapa Jenmani 609

WALLACE, RAYMOND HAROLD. The production of intumescences in Transparent apple by ethylene gas as affected by external and internal conditions, 499
WILSON, C. L. Adventitious roots

and shoots in an introduced weed, 35
Wisteria macrostachya 166
Woodwardia areolata 161
Woody plants, Magnolia cordata and other, 579

X-bodies in the cells of dahlia plants affected with mosaic disease and dwarf, The, 285
Xylophacos amphioxys 15

Zea Mays 98, 102, 420
Zostera marina latifolia: ecad or ecotype? 1
Zostera latifolia 1, 2; marina 1, 2, 6; marina latifolia 1, 3; marina typica 3, 4, 5, 6; oregana 2; pacifica 2